

THE CONSERVATION STATUS OF MALLEEFOWL
IN NEW SOUTH WALES

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Bachelor of Natural Resources

This thesis is submitted to fulfil
the requirements for the degree of
Master of Resource Science at the
University of New England.

Submitted August, 1987.

Declaration

I certify that the substance of this thesis has not already been submitted for any degree and is not being currently submitted for any other degree.

I certify that to the best of my knowledge any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.



John Brickhill

ABSTRACT

The breeding behaviour of Malleefowl is well known, but the conservation status and ecology of the species are poorly understood. Malleefowl populations have declined because of habitat loss, competition from domestic stock and possibly because of the effects of introduced predators.

The distribution, both past and present, of Malleefowl in NSW was investigated by sending a questionnaire to property holders. The current distribution is separated in eight zones; sub-groups are further isolated within habitat remnants in two of those zones. The distribution is closely tied to remaining areas of dry mallee, ironbark-red gum forest and ironbark-pine forest.

The population density was estimated by surveys on foot and by aerial surveys. The unit of population used was active nests. The population size in the state, estimated by multiplying the density estimates by the area of distribution in the respective habitat types, was 745 active nests. Insufficient data prevented any estimate of the non-breeding population, or of errors in the population size.

Malleefowl diet was examined by faecal analysis. Scats from adults were collected over a six-months period. Remains of food particles were identified by comparison with a reference collection, and volumes of intake calculated from the surface area of particles. Large fruits and seeds of Cassythia (mallee stranglevine), Triticum (wheat), Einadia (saloop),

Carthamus (saffron thistle) and Acacia (wattle) comprised the major part of the diet in summer and early autumn. Green herbage was commonly eaten in spring and anthropods eaten throughout the whole period, but predominantly in autumn.

Fecundity and breeding success were monitored during a drought and a very wet summer. Many nests were abandoned before egg laying during the drought, while in the wet summer many eggs died in saturated nests. Hatching success was 51% of all eggs laid, producing a mean of 7.8 chicks per nest, and this result was similar to previous studies.

Analysis of habitat around active nests showed that grass cover, herb cover and distance to the nearest neighbour were correlated to the number of eggs laid in a nest. At one site with more than half the active nests, only grass cover and the distance to the nearest paddock edge were correlated to the number of eggs laid. These results can be explained by the fact that grass, herbs and the distance to the paddock edge are all measures of food availability. The correlation of eggs laid and nearest neighbour distance suggests that Malleefowl compete for food. The habitat producing the greatest density of eggs and chicks was modified by regular cutting and burning of small patches of mallee: reasons for this disturbance improving the habitat quality are discussed.

As a result of this study the conservation status of Malleefowl within NSW can be assessed. The population is small, fragmented into genetically isolated groups and under

threat from habitat loss or habitat modification and competition from introduced herbivores. Current data suggest that the population size is declining, with excessive chick mortality the likely cause. Habitat change through grazing and prescribed fire may be further threats.

Management strategies are proposed to address the problems of habitat loss, reduction in habitat quality and excessive mortality of chicks. Further problems in small remnants are random extinctions by catastrophe and loss of genetic variation and viability through inbreeding. The strategies involve protection of habitat in reserves, habitat improvement by cutting or burning of small patches, captive breeding to provide stocks of Malleefowl for re-introductions or re-stocking of low populations and control of competitors and predators.

ACKNOWLEDGEMENTS

This study would not have been possible without the assistance of many people, to whom I give my thanks.

My employers, the NSW National Parks and Wildlife Service provided necessary support in the form of time, funds and aircraft. Colleagues within the Service provided assistance with ideas and information and staff at Griffith helped with fieldwork. Ros Fleetwood collated the questionnaire returns and plotted distribution maps.

The Australian National Parks and Wildlife Service, through a States Assistance Grant, provided funds for the extensive aerial surveys. The National Parks and Fisheries and Wildlife Services of Victoria provided observers for those surveys.

Access to properties was given by L. Darrington and R. Woods. Ned and Gaye Wheatley and Cyril and Jean Kalms provided access to their properties, hospitality and encouragement to continue during the summers of 1983 and 1984.

Students from the Faculty of Resource Management at the University of New England searched thick mallee for nests. Two students, Andrew Grigg and Ian Hearnese helped with nest inspections and habitat recording.

Joe Benshemesh marked out the aerial survey calibration sites in Wyperfeld and organised the surveys to find the nest densities in those sites. David Priddel co-operated with the

collection of eggs in 1984 and Les Clayton incubated the eggs and raised the chicks at Taronga Zoo.

Marg Beasley and Monique O'Brien typed the thesis; Monique patiently corrected all the changes to the drafts to make the work presentable.

My supervisors for the study were Peter Jarman, Andrew Smith and Graeme Caughley. Peter and Andrew provided the stimulation required to clarify aims, maintain direction and produce valid results and their comments on drafts of the thesis were much appreciated.

I am most grateful for the efforts of one person in particular. This thesis would never have been completed without the encouragement and support of my wife Chris who continually took additional responsibilities of home and family so that I could concentrate on completing the project.

Finally, I thank the large number of people who have not been mentioned by name who have provided observations, information and ideas on Malleefowl.

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